

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS:

1. (Currently Amended) An RFID tag, comprising:
 - a substrate having a top surface and a bottom surface;
 - an RFID integrated circuit disposed on the top surface of the substrate;
 - a first electrically conductive region associated with the top surface of the substrate, so as to be disposed above the top surface of the substrate, and electrically coupled to the RFID integrated circuit;
 - a second electrically conductive region associated with the bottom surface of the substrate, so as to be disposed below the bottom surface of the substrate, and electrically coupled to the first conductive region via non-contact coupling, the first and second conductive regions forming an RFID antenna; the RFID integrated circuit, first conductive region and second conductive region together providing an RFID function;
 - an attachment layer associated with the bottom surface of the substrate, so as to be disposed below the bottom surface of the substrate, for attaching the tag to a receiving surface; and
 - an adhesion modifying layer modifying adhesion of the second conductive region such that the second conductive region is disrupted if the tag is tampered or removed from the receiving surface.
2. (Canceled)

3. (Previously Presented) The RFID tag of claim 1, wherein the non-contact coupling is one of capacitive coupling and inductive coupling.
4. (Original) The RFID tag of claim 1, wherein the first conductive region is directly coupled to the RFID integrated circuit.
5. (Original) The RFID tag of claim 1, wherein the adhesion modifying layer is arranged between the bottom of the substrate and the second conductive region.
6. (Original) The RFID tag of claim 1, wherein the adhesion modifying layer is arranged between the second conductive region and the attachment layer.
7. (Original) The RFID tag of claim 1, wherein the attachment layer is a layer of adhesive.
8. (Original) The RFID tag of claim 1, further comprising an overlayer formed over the first conductive region and the RFID integrated circuit.
9. (Original) The RFID tag of claim 1, further comprising printed graphics applied to the tag.
10. (Currently Amended) An RFID tag, comprising:
a substrate having a top surface and a bottom surface;

an RFID integrated circuit disposed on the top surface of the substrate;
a first electrically conductive region disposed on the top surface of the substrate, so as to be disposed above the top surface of the substrate, and electrically coupled to the RFID integrated circuit, the first conductive region forming an RFID antenna;

a second electrically conductive region disposed on the bottom surface of the substrate, so as to be disposed below the bottom surface of the substrate, and electrically coupled to the RFID integrated circuit via non-contact coupling, the RFID integrated circuit adapted to detect at least one electrical property of the second conductive region;

an attachment layer for attaching the tag to a receiving surface, the attachment layer being associated with the bottom of the substrate, so as to be disposed below the bottom surface of the substrate; and

an adhesion modifying layer modifying adhesion of the second conductive region such that the second conductive region is disrupted if the tag is tampered or removed from the receiving surface, thereby modifying the at least one electrical property of the second conductive region detected by the RFID integrated circuit.

11. (Canceled)

12. (Previously Presented) The RFID tag of claim 10, wherein the non-contact coupling is one of capacitive coupling and inductive coupling.

13. (Original) The RFID tag of claim 10, wherein the second conductive region is arranged around a perimeter of the bottom surface of the substrate.

14. (Original) The RFID tag of claim 10, wherein the RFID integrated circuit is adapted to record or transmit information representing the at least one electrical property of the second conductive region.

15. (Previously Presented) The RFID tag of claim 10, further comprising a power source within the tag and coupled to the RFID integrated circuit.

16. (Original) The RFID tag of claim 10, further comprising at least one coupling circuit directly connected to the RFID integrated circuit for electrically coupling the RFID integrated circuit to the second conductive region.

17. (Original) The RFID tag of claim 10, further comprising at least one coupling circuit arranged on the bottom surface of the substrate and connected to the second conductive region, for coupling of the second conductive region to the RFID integrated circuit.

18. (Original) The RFID tag of claim 14, wherein the at least one electrical property is an electrical impedance value of the second conductive region.

19-47. (Canceled)

48. (Currently Amended) An RFID tag, comprising:

a substrate having a top surface and a bottom surface;

an electrically conductive region disposed on the bottom surface of the substrate, so as to be disposed below the bottom surface of the substrate, the conductive region forming an RFID antenna;

an attachment layer for attaching the tag to a receiving surface, the attachment layer being associated with the bottom surface of the substrate, so as to be disposed below the bottom surface of the substrate;

an RFID integrated circuit disposed on the top surface of the substrate and electrically coupled to the electrically conductive region via non-contact coupling; and

a first adhesion modifying layer modifying adhesion of the electrically conductive region so as to provide areas of different adhesion strength such that the electrically conductive region is disrupted if the tag is tampered or removed from the receiving surface.

49. (Original) The RFID tag of claim 48, further comprising a second adhesion modifying layer modifying the adhesion of the RFID integrated circuit such that the RFID integrated circuit is modified if the RFID circuit is removed from the substrate.

50. (Original) The RFID tag of claim 48, wherein the first adhesion modifying layer is arranged between the bottom surface of the substrate and the electrically conductive region.

51. (Original) The RFID tag of claim 48, wherein the first adhesion modifying layer is arranged between the electrically conductive region and the attachment layer.

52. (Currently Amended) An RFID tag, comprising:
a substrate having a top surface and a bottom surface;
an RFID integrated circuit disposed on the top surface of the substrate;
a first electrically conductive region associated with the top surface of the substrate, so as to be disposed above the top surface of the substrate, and electrically coupled to the RFID integrated circuit via non-contact coupling, the first conductive region forming an RFID antenna;
a second electrically conductive region associated with the bottom surface of the substrate, so as to be disposed below the bottom surface of the substrate, and electrically coupled to the RFID circuit via non-contact coupling;
an attachment layer associated with the bottom surface of the substrate, so as to be disposed below the bottom surface of the substrate, for attaching the tag to a receiving surface; and
a first adhesion modifying layer modifying adhesion of the second conductive region such that the second conductive region is disrupted if the tag is tampered or removed from the receiving surface.

53. (Original) The RFID tag of claim 52, further comprising a second adhesion modifying layer modifying the adhesion of the RFID integrated circuit such that the RFID integrated circuit is modified if the RFID circuit is removed from the substrate.

54. (Original) The RFID tag of claim 52, wherein the first adhesion modifying layer is arranged between the bottom of the substrate and the second conductive region.

55. (Original) The RFID tag of claim 52, wherein the first adhesion modifying layer is arranged between the second conductive region and the attachment layer.

56. (Original) The RFID tag of claim 52, wherein the attachment layer is a layer of adhesive.

57. (Original) The RFID tag of claim 52, further comprising an overlayer formed over the first conductive region and the RFID integrated circuit.

58. (Currently Amended) A combination, comprising:
an RFID tag comprising:
a substrate having a top surface and a bottom surface;
an electrically conductive region disposed on the bottom surface of the substrate, so as to be disposed below the bottom surface of the substrate, the conductive region forming an RFID antenna;
an attachment layer for attaching the tag to a receiving surface, the attachment layer being associated with the bottom surface of the substrate, so as to be disposed below the bottom surface of the substrate;

an RFID integrated circuit disposed on the top surface of the substrate and electrically coupled to the electrically conductive region via non-contact coupling, the RFID integrated circuit including a memory; and

a first adhesion modifying layer modifying adhesion of the electrically conductive region such that the electrically conductive region is disrupted if the tag is tampered or removed from the receiving surface; and

an RF read/write device provided remotely from the RFID tag and communicating with the memory of the RFID integrated circuit;

wherein the RF read/write device writes information into the memory of the RFID integrated circuit indicating that the electrically conductive region has been disrupted.

59. (Previously Presented) The combination of claim 58, wherein the information written into the RFID integrated circuit is locked so that the information cannot be subsequently be modified.

60. (Previously Presented) The combination of claim 58, wherein the information written into the RFID integrated circuit is a permanent record that the conductive region has been disrupted.

61. (Previously Presented) The combination of claim 58, wherein the RF read/write device writes into the memory of the RFID integrated circuit an initial value of at least one electrical property of the electrically conductive region, and later reads a subsequent value of the at least one electrical property, and wherein the RFID

integrated circuit compares the subsequent value with the initial value written in the memory of the RFID integrated circuit.

62. (Previously Presented) The combination of claim 61, wherein the initial value of the at least one electrical property is locked in the memory of the RFID integrated circuit to avoid modification.

63. (Currently Amended) A combination, comprising:

- an RFID tag comprising:
 - a substrate having a top surface and a bottom surface;
 - an electrically conductive region disposed on the bottom surface of the substrate, so as to be disposed below the bottom surface of the substrate, the conductive region forming an RFID antenna;
 - an attachment layer for attaching the tag to a receiving surface, the attachment layer being associated with the bottom surface of the substrate, so as to be disposed below the bottom surface of the substrate; and
 - an RFID integrated circuit disposed on the top surface of the substrate and electrically coupled to the electrically conductive region via non-contact coupling, the RFID integrated circuit including a memory; and
- an RF read/write device provided remotely from the RFID tag and communicating with the memory of the RFID integrated circuit, wherein
 - the RF read/write device writes into the memory of the RFID integrated circuit an initial value of at least one electrical property of the electrically conductive region, and later reads a subsequent value of the at least one electrical property detected by the RFID integrated circuit, and

the RFID integrated circuit compares the subsequent value with the initial value written in the memory of the RFID integrated circuit.

64. (Previously Presented) The combination of claim 63, wherein if the subsequent value matches with the initial value, it is determined that the RFID integrated circuit is electrically coupled to a particular type of electrically conductive region.

65. (Previously Presented) The combination of claim 63, wherein the initial value of the at least one electrical property of the electrically conductive region is adapted to be deliberately varied before the initial value is written into the memory of the RFID integrated circuit.

66. (Previously Presented) The combination of claim 65, wherein the RFID integrated circuit detects an impedance of the electrically conductive region, and the detected impedance depends on the at least one electrical property of the electrically conductive region.

67. (Previously Presented) The combination of claim 66, wherein the initial value of the at least one electrical property is deliberately varied by changing a layout of the electrically conductive region.

68. (Previously Presented) The combination of claim 66, wherein the initial value of the at least one electrical property is deliberately varied by changing a width

or area of electrical traces or connections comprising the electrically conductive region.

69. (Previously Presented) The combination of claim 66, wherein the initial value of the at least one electrical property is deliberately varied by changing a thickness of the conductive material comprising the electrically conductive region.

70. (Previously Presented) The combination of claim 66, wherein the initial value of the at least one electrical property is deliberately varied by changing a type of material comprising the electrically conductive region.

71. (Previously Presented) The combination of claim 66, wherein the initial value of the at least one electrical property is deliberately varied by changing an area of a non-contact coupling circuit coupling the electrically conductive region to the RFID integrated circuit.

72. (Currently Amended) An RFID tag, comprising:
a first substrate having a top surface and a bottom surface;
an RFID integrated circuit disposed on the bottom surface of the first substrate;
a second substrate having a top surface and a bottom surface, the top surface of the second substrate having a larger surface area than the top or bottom surface of the first substrate;
an electrically conductive region disposed on the bottom surface of the second substrate, so as to be disposed below the bottom surface of the second

substrate, and electrically coupled to the RFID integrated circuit via non-contact coupling, the first conductive region forming an RFID antenna, and the RFID integrated circuit adapted to detect at least one electrical property of the electrically conductive region;

an adhesive layer associated with the top surface of the second substrate for attaching the first substrate to the second substrate;

an attachment layer associated with the bottom of the second substrate, so as to be disposed below the bottom surface of the second substrate, for attaching the second substrate to a receiving surface; and

an adhesion modifying layer modifying adhesion of the electrically conductive region such that the electrically conductive region is disrupted if the second substrate is tampered or removed from the receiving surface, thereby modifying the at least one electrical property of the electrically conductive region detected by the RFID integrated circuit.

73. (New) The RFID tag of claim 1, further including:

a coupling circuit that facilitates electrical non-contact coupling of the integrated circuit with the antenna.